

Perspective™ Efficacy Study
Arizona's Instrument to Measure Standards (AIMS) High School
Reading and Mathematics

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Executive Summary

Pearson Perspective™ was launched in Arizona during fall 2011 as the result of a joint effort between the Arizona Department Education and Pearson. The instructional website was designed to provide a variety of learning resources to supplement and enrich the education students receive in Arizona. Since the eLearning resource site became available for high school reading and mathematics, approximately 10,000 visits were made to the Educator site and 6,000 visits were made to the Family site. Survey research conducted after the 2012 spring administration revealed that the majority of survey respondents felt the activities available on the Perspective™ site were helpful in learning instructional content. Among those high school students who engaged in some activity on the Perspective™ site, approximately 29% of the students passed the AIMS High School Reading test and 20% of the students passed the AIMS High School Mathematics test in spring 2012.

Introduction

This document describes a study of the effectiveness of an online learning resource for students in Arizona called Perspective™. The study was designed to address three points; use of the Perspective™ website, student perceptions of the site, and effect on student test scores as a result of site use. The Arizona Perspective™ site was launched in fall 2011 for high school students and educators. The students who did not pass the fall 2011 AIMS High School Reading and Mathematics tests received a Learning Locator™ code on their AIMS student score reports which could be used to access to the eLearning resources on the Perspective™ site. The number of web site hits on both the educator site and family site of Perspective™ were monitored throughout the school year of 2011 – 2012. In order to evaluate the effectiveness of the Perspective™ site, a survey of students who received a Learning Locator™ code was conducted after the spring 2012 AIMS High School Reading and Mathematics administrations were completed. The spring 2012 AIMS High School test score data was analyzed to compare the performance of students who reported using the Perspective™ site and that of students who did not.

Arizona Perspective™ Site

Perspective™ is an online suite of learning resources. It contains components tailored to educators, students, and families. The educator site contains a repository of learning activities that teachers can use to construct sets of learning activities tied to a particular unit of instruction that students might work through as a learning activity. Educators can also build quizzes or tests in the system to gauge student progress. The family site contains similar learning resources that students and families can use to enhance the learning that occurs in the classroom. The Learning Locator™ component of Perspective™ is a system whereby a learning locator code can be attached to a student's state assessment score report that will take the student directly to targeted learning activities that match the areas of the weakness in the student's test performance. The Perspective™ web sites were implemented in Arizona for high school reading and mathematics during the fall of 2011 and the Learning Locators™ were incorporated in student score reports after fall testing of that same year.

The instructional content in Arizona is organized into Strands, Concepts, and Performance Objectives. Mathematics consists of five Strands: Numbers and Operations; Data Analysis and Probability; Patterns, Algebra Functions; Geometry and Measurement; and, Structure and Logic. Reading consists of three Strands; The Reading Process; Comprehending Literary Text; and, Comprehending Information Text. Learning activities in Perspective™ that aligned to these content strands were identified and made available in the Arizona Perspective™ web site.

Students in Arizona typically take the high school Reading and Mathematics test for the first time in the spring of their tenth grade year. If they do not meet the standard on their first attempt they retake the test during the following fall. If they still do not meet the standard they take the test again the following spring. The students involved in this study had not met the standard in reading and/or mathematics during their first attempt in spring 2010 and retook the test(s) in the fall of 2011. Criterion scores were identified for each Strand in each content area and students who scored below the criterion score in a Strand received a learning Locator that would direct them to learning activities ties to that Strand.

The Family and Educator Perspective™ sites went online in August, 2011. The fall 2011 high school retests took place on October 26 and 27, 2011. The Student Perspective™ site became available on December 8 and a press release informing the public about Perspective™ was released on December 13. Student score reports for the fall administration were available on December 15. The spring 2012 Reading test took place on February 29 and the Mathematics test took place on April 10. It was hoped that activity would increase for both sites around the time of the press release and delivery of student score reports, and again prior to the spring test administrations. The table below summarizes the timeline for the implementation and testing activities.

Perspective Educator and Family sites open	August 2011
Fall 2011 High School re-tests	October 25-27, 2011
Perspective Student site opens	December 8, 2011
Perspective press release	December 13, 2011
Fall 2011 student score reports distributed	December 15, 2011
Spring 2012 reading test and Survey Letter	February 29, 2012
Spring 2012 mathematics test and Survey Letter	April 10, 2012

Site activity on both the Perspective™ educator site and family sites was monitored during the school year of 2011 – 2012. The number of weekly visits to the Educator site is summarized in Figure 1. The total number of visits to the educator site during the school year was 9652. The number of visits peaked twice for the educator site, once right after the Perspective™ site was launched (WK33, August 15) and once before the fall 2011 AIMS Fall High School tests were administered (WK42, October 17) on October 26, 2011 for Reading and October 27, 2011 for Mathematics. There is increased activity during WK51, 2011 just after fall score reports were available and again during the first weeks of 2012 after the winter break. There is also increased activity during weeks 12 through 15 which corresponds to the time period of the spring 2012 test administration.

Figure 1. Weekly Educator site access between the week of August 15, 2011 (WK33 2011) and the week of May 22, 2012 (WK22 2012)

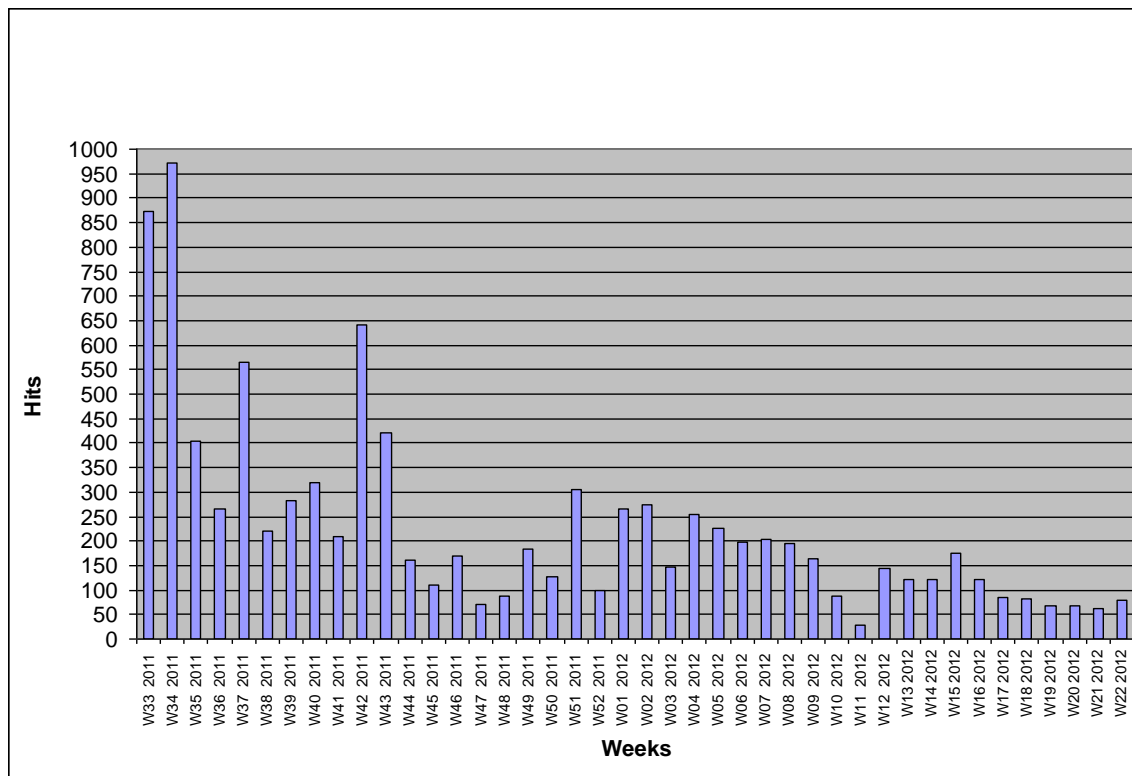
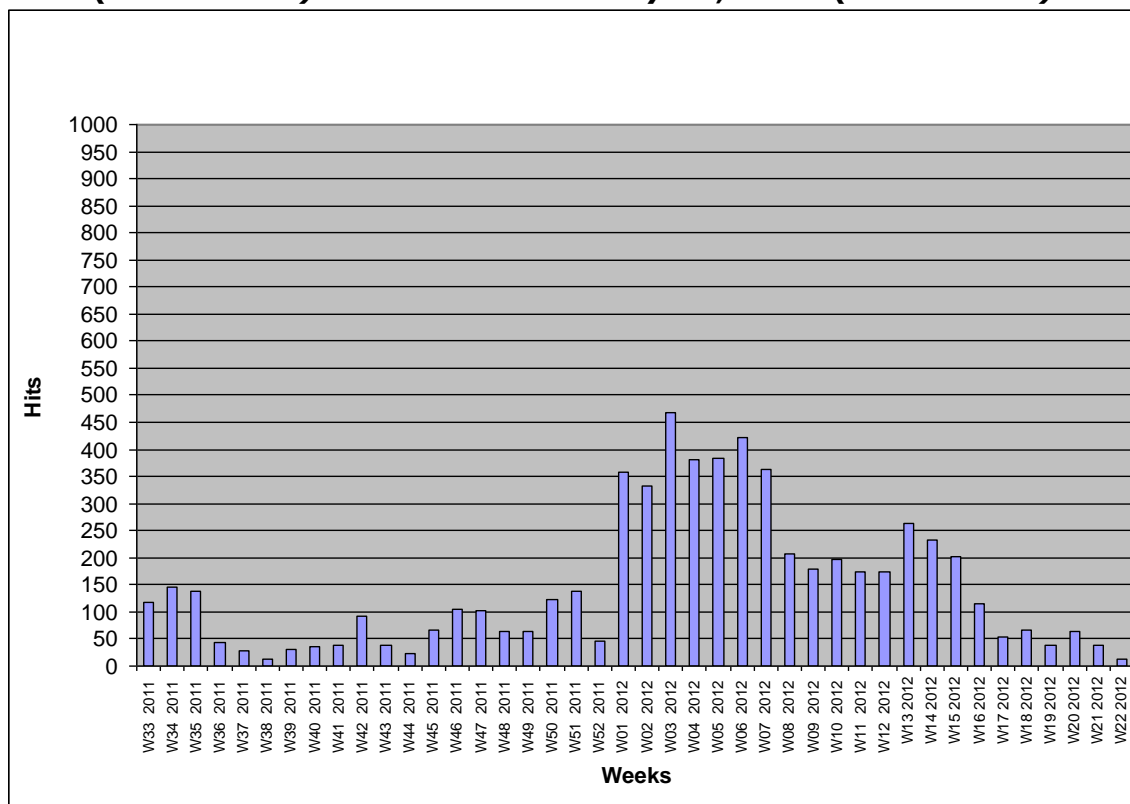


Figure 2 shows the number of weekly visits for the family site. The total number of visits to the family site was 6183. The number of visits peaked spiked during the first week of 2012 and remained high through week 7 (February 13, 2012). This corresponds to the time just before the spring 2012 AIMS High School Reading administration. Site activity tapered off and then increased again during the week of March 26 through the week of April 9 (Weeks 13, 14, and 15) which is the time period just before the spring 2012 AIMS High School Mathematics administration.

Figure 2. Weekly Family site access between the week of August 15, 2011 (WK33 2011) and the week of May 22, 2012 (WK22 2012)



Efficacy Study

A survey research design was used in order to investigate the effect of the Perspective™ Learning Locator™ on student learning. The target group was students who took the AIMS High School Reading and/or Mathematics tests in fall 2011 and did not pass one or both of the tests. They received a Learning Locator™ code on their AIMS student score report depending on their performance on the fall 2011 AIMS High School test. The Learning Locator™ codes were tied to patterns of performance across the strands in either reading or mathematics. Students then had the opportunity to enter the Perspective™ site and be taken directly to learning activities based on their performance on the AIMS test. A student survey was put online after the AIMS High School 2012 spring reading administration on February 29, 2012 and on April 10, 2012 for Mathematics. A participation letter (Appendix A) was sent to schools for distribution to the target students asking them to participate in the survey. Letters were supplied to 16594 students who were expected to take the reading test, and to 38047 students who were expected to take the Mathematics test.

The online survey was available from February 29, 2012 through March 21, 2012 for Reading and from April 10, 2012 through May 1, 2012 for Mathematics. Students were assigned a survey ID number in their invitation letter which they were asked to enter when they went to the survey website. This allowed for matching survey responses to the students' AIMS test score data. Responses were received from 853 students for Reading and from 1133 students for Mathematics. The response rates were 5% and 3% for Reading and Mathematics, respectively. The survey data was merged with the fall 2011 AIMS High School Reading and Mathematics test score data as well as the spring 2012 AIMS High School Reading and Mathematics data in order to retrieve the student test scores from the two administrations. There were 651 records that could be matched across the data sets for Reading and 874 records that could be matched for Mathematics. The number of invalid cases and the type of invalid cases are summarized in Table 1 for Reading and in Table 2 for Mathematics.

Table 1. Number of Survey Participants for Reading

Record Type from the Survey	Number of Participants
Valid Records	651
Invalid Records	202
Invalid Survey ID	2
No Student ID on Fall Data	14
No Record on Spring Data	83
Duplicate Survey Record	103
Total	853

Table 2. Number of Survey Participants for Mathematics

Record Type from the Survey	Number of Participants
Valid Records	874
Invalid Records	259
Invalid Survey ID	4
No Student ID on Fall 2011 Data	20
No Record on Spring 2012 Data	70
Duplicate Survey Record	165
Total	1133

The frequencies of student responses to the survey questions for the valid records are shown in Appendices B and C for Reading and Mathematics, respectively. Note that if a student responded "No" to Question 2 (*Did you go to the Pearson Perspective™ website to your Learning Locator link?*), the online survey would end without going further. Thus, the number of responses on Questions 3-9 is the same as the number of students who said "Yes" to Question 2. The responses to Questions 1 and 2 are summarized in the cross-tabulations in Tables 3 and 4 for Reading and Mathematics,

respectively. The majority of students responded that they did not see the Learning Locator code on their score report. Of the students who indicated that they did see the code fifty percent or less, 126 students for Reading and 118 students for Mathematics, reported going to the site.

Table 3. Cross-tabulation of Responses for Survey Questions 1 and 2 for Reading

		Q2		
		Yes	No	No Response
Q1	Yes	126	120	1
	No	0	8	384
	No Response	0	0	12
	Total	126	128	397
		Total		

Note: Question 1: Did you see the Learning Locator code™ on your score report for Fall 2011 AIMS HS?
Question 2: Did you go to the Pearson Perspective™ web site to access your Learning Locator Link?

Table 4. Cross-tabulation of Responses for Survey Questions 1 and 2 for Mathematics

		Q2		
		Yes	No	No Response
Q1	Yes	118	168	1
	No	0	0	573
	No Response	0	0	14
	Total	118	128	588
		Total		

Note: Question 1: Did you see the Learning Locator code™ on your score report for Fall 2011 AIMS HS?
Question 2: Did you go to the Pearson Perspective™ web site to access your Learning Locator Link?

The performance on the spring 2012 AIMS High School Reading and Mathematics tests was compared among the following groups; 1) students who reported going to the Perspective™ site (those who responded "Yes" to Question 2), 2) students who reported that they did not go to the site at all (those who said "No" or did not give any response to Question 2), and 3) all students who took the AIMS High School test in fall 2011 and did not meet the standard and then took the spring 2012 test. The average scale scores from the fall 2011 administration and the spring 2012 administration and the gain in the scale score from fall 2011 to spring 2012 are summarized for the three groups in Table 5 for Reading and in Table 6 for Mathematics. The descriptive statistics revealed that the performance of the three groups was similar in terms of the average gain score from fall 2011 to spring 2012 as well as the passing rate of the spring 2012 test for both Reading and Mathematics. 29% of students who reported using the Perspective™ site passed the Reading test in spring 2012 while 20% of the students passed the Mathematics test in spring 2012. The passing rates were comparable to those for the other two groups except that the passing rate of the Mathematics test for all students was slightly lower (16%).

Table 5. Mean Scale Scores of AIMS HS Reading for Fall 2011 and Spring 2012 and the Gain Score by Student's Response on Survey Question 2, and Scores for All Students Who Took the Fall and Spring Tests.

Q2	Scale Scores	N	Mean	% Passing
Yes	Fall 2011	125	646	-
	Spring 2012	126	659	29%
	Gain	125	13	-
No/No Response	Fall 2011	520	643	-
	Spring 2012	525	659	28%
	Gain	520	16	-
All	Fall 2011	11453	643	-
	Spring 2012	11453	657	26%
	Gain	11453	14	-

Note: Question 2: Did you go to the Pearson Perspective™ web site to access your Learning Locator Link?

Table 6. Mean Scale Scores of AIMS HS Mathematics for Fall 2011 and Spring 2012 and the Gain Score by Student's Response on Survey Question 2, and Scores for All Students Who Took Both Tests.

Q2	Scale Scores	N	Mean	% Passing
Yes	Fall 2011	118	458	-
	Spring 2012	118	465	20%
	Gain	118	7	-
No/No Response	Fall 2011	756	461	-
	Spring 2012	755	468	20%
	Gain	755	7	-
All	Fall 2011	26670	458	-
	Spring 2012	26636	464	16%
	Gain	26636	6	-

Note: Question 2: Did you go to the Pearson Perspective™ web site to access your Learning Locator Link?

The performance of students who reported using the Perspective™ site was analyzed in terms of hours spent on the web site to learn materials and summarized in Table 7 for Reading and Table 8 for Mathematics. The majority of students spent a total of less than 1 hour to 3 to 5 hours on the Perspective™ site. The average gain score from fall 2011 to spring 2012 varied from 5 to 19 scale score points for Reading and from 1 to 14 scale score points for Mathematics, depending on the hour spent on the web site.

Table 7. Mean Scale Score of AIMS HS for Fall 2011 and Spring 2012 and Gain Score in Reading by Student's Response on Survey Question 5.

Q5	N	Fall 2011	Spring 2012	Gain
Less Than 1 Hour	41	645	664	19
1-2 Hours	48	647	656	9
3-5 Hours	20	642	653	10
6-10 Hours	6	653	658	5
More Than 10 Hours	2	644	661	17
Total	117			

Note: Question 5: About how much total time did you spend working on learning activities? 9 students did not respond to this question.

Table 8. Mean Scale Scores of AIMS HS Mathematics for Fall 2011 and Spring 2012 and the Gain Score by Student's Response on Survey Question 5.

Q5	N	Fall 2011	Spring 2012	Gain
Less Than 1 Hour	36	460	464	4
1-2 Hours	35	454	467	14
3-5 Hours	19	464	474	10
6-10 Hours	3	455	455	1
More Than 10 Hours	4	471	482	11
Total	97			

Note: Question 5: About how much total time did you spend working on learning activities? 21 students did not respond to this question.

Conclusion

After the Arizona Perspective™ site was available for educators, parents, and students in fall 2011, approximately 10000 visits were made to the educator's site and 6000 visits were made to the family site. The response rates to the student survey for reading and mathematics were extremely small, so care should be taken not to over generalize any findings from the study. However, there is some indication of positive results. While the efficacy study did not reveal any meaningful differential performance on the spring 2012 AIMS High School tests between the students who used the Perspective™ site and the students who did not, some encouraging feedback was obtained from the survey. For example, the majority of students who reported using the Perspective™ site felt that the web site helped them learn materials (Question 6 in Appendices B and C). The students also thought that the online learning resource helped them improve their performance on the AIMS High School tests (Question 7 in Appendices B and C). On the other hand, many students who received the Learning Locator™ on their student report in fall 2011 commented on the survey that they were not aware of the

existence of the site. Therefore, the Arizona Department of Education and Pearson should make a concerted effort to advertise the eLearning resources.

Appendix A. Participation Letter on the Learning Locator™ Survey



State of Arizona
Department of Education
Office of John Huppenthal
Superintendent of Public Instruction

STUDENT FIRST NAME AND LAST NAME
SCHOOL NAME
DISTRICT NAME

Dear *STUDENT FIRST NAME*:

Pearson and the Arizona Department of Education have created an instructional website named Perspective™. It is designed to provide a variety of learning resources to supplement and enrich the education you and other students receive in Arizona. Perspective™ was put online last fall and we are conducting a study to determine if students are aware of it, and if so, how much they use it and whether they find it helpful. The results of the study will help the Arizona Department of Education decide if they should continue to devote valuable resources to the project or whether those resources could be better used elsewhere.

We invite you to participate in the study by completing a brief online survey. Your participation is very important whether or not you have used the Perspective™ website. Accurate survey results rely on a high participation rate and responses from students who have and who have not used Perspective™. The survey should only take about ten minutes to complete and can be done from any computer or other device with an internet connection.

Please visit the link at the bottom of the page to fill out the survey. When you start the survey, you will be asked to type in a survey ID. Your survey ID is also listed at the bottom of the page below the link to the survey. All survey responses you provide will remain completely confidential. The survey ID is to ensure that only invited participants can complete a survey and that only one survey per ID is submitted. Your responses will only be used in combination with the responses of other students to provide summary information to the Arizona Department of Education.

Thank you for your assistance in this important study. If you would, please complete the survey within two weeks. If you have any questions you may call Dr. Charles Bruen at (602) 364-0462.

Survey Link: *SURVEY LINK HERE*

Survey ID: *SURVEY ID HERE*



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Appendix B. The Learning Locator™ Survey Questions and Responses for Reading

1. Did you see the Learning Locator™ code on your score report for Fall 2011 AIMS HS?

(Yes - **247**, No - **392**, No Response - **12**)

(if answer is 'no' survey is complete?, if 'yes' continue)

2. Did you go to the Pearson Perspective™ web site to access your Learning Locator link?

(Yes - **126**, No - **128**, No Response - **397**)

(if 'no' branch to a comment box 'Please tell us why you did not go to the Perspective™ web site.

if 'yes' continue)

3. For what subject did you access Pearson Perspective?

(Reading - **65**, Mathematics - **14**, Both - **39**, No Response - **8**)

4. How many times did you connect to the Pearson Perspective™ web site?

(1-2 - **97**, 3-5 - **12**, 6-10 - **4**, More than 10 - **4**, No Response - **9**)

5. About how much total time did you spend working on learning activities?

(Less than one hour - **41**, 1-2 hours - **48**, 3-5 hours - **20**, 6-10 hours - **6**, More than 10 hours - **2**, No Response - **9**)

6. Did the activities help you learn the material?

(Yes - **98**, No - **17**, No Response - **11**)

7. How much do you think using the learning materials helped you to improve your score on the Spring 2012 AIMS HS test?

(None - **8**, A little - **31**, Some - **46**, A lot - **32**, No Response - **9**)

8. How much/often did either a teacher or parent encourage you to use Perspective™ Learning Locator?

(Never - **22**, Once - **46**, Occasionally - **23**, Often - **22**, No Response - **13**)

9. Did you access Pearson Perspective™ from home, school, or both?

(Home - **11**, School - **85**, Both - **18**, Other - **3**, No Response - **9**)

Comments

At the end of the survey:

Thank you for participating in this survey.

Appendix C. The Learning Locator™ Survey Questions and Responses for Mathematics

1. Did you see the Learning Locator™ code on your score report for Fall 2011 AIMS HS?

(Yes - **287**, No - **573**, No Response - **14**)

(if answer is 'no' survey is complete?, if 'yes' continue)

2. Did you go to the Pearson Perspective™ web site to access your Learning Locator link?

(Yes - **118**, No - **168**, No Response - **588**)

(if 'no' branch to a comment box 'Please tell us why you did not go to the Perspective™ web site.

if 'yes' continue)

3. For what subject did you access Pearson Perspective?

(Reading - **10**, Mathematics - **65**, Both - **23**, No Response - **20**)

4. How many times did you connect to the Pearson Perspective™ web site?

(1-2 - **71**, 3-5 - **19**, 6-10 - **4**, More than 10 - **4**, No Response - **20**)

5. About how much total time did you spend working on learning activities?

(Less than one hour - **36**, 1-2 hours - **35**, 3-5 hours - **19**, 6-10 hours - **3**, More than 10 hours - **4**, No Response - **21**)

6. Did the activities help you learn the material?

(Yes - **75**, No - **22**, No Response - **21**)

7. How much do you think using the learning materials helped you to improve your score on the Spring 2012 AIMS HS test?

(None - **8**, A little - **23**, Some - **39**, A lot - **24**, No Response - **24**)

8. How much/often did either a teacher or parent encourage you to use Perspective™ Learning Locator?

(Never - **21**, Once - **25**, Occasionally - **23**, Often - **21**)

9. Did you access Pearson Perspective™ from home, school, or both?

(Home - **15**, School - **58**, Both - **20**, Other - **4**)

Comments

At the end of the survey:

Thank you for participating in this survey.